

AP Biology Sunlake High School

Ms. Pugh

Summer assignment 2025-26

Iknow what you are thinking....

.....Why a summer assignment?

AP Biology is a vigorous, yet manageable and rewarding class. In order to meet the demands of the curriculum it is necessary for you to complete some work before you come back in August. Your summer assignment will be based around pre-requisite information that you need a refresher on before coming back. Many of you may be well versed in these topics already so it shouldn't be too difficult.

WHAT ARE YOU REQUIRED TO DO?

Part #1: The 7 Science Practices

The first part of your summer assignment is to familiarize yourself with these seven practices by watching Bozeman Science videos and completing the corresponding video worksheets. Please print and handwrite these worksheets and be ready to turn them in on the first day of class. It will take you about an hour to watch all seven videos. Bookmark http://www.bozemanscience.com/ap-biology/

Science Practice 1: The student can use representations and models to communicate scientific phenomena and solve scientific problems. Video: https://www.youtube.com/watch?v=v5Nemz cVew Worksheet: https://tinvurl.com/v95q5ajp

Science Practice 2: The student can use mathematics appropriately. Video: <u>https://www.youtube.com/watch?v=jgqYlSKoXak</u> Worksheet: https://tinyurl.com/yaqqtqqk

Science Practice 3: The student can engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course. Video: https://www.youtube.com/watch?v=2zB272Ak63A Worksheet: https://tinyurl.com/yc2g4qrc

Science Practice 4: The student can plan and implement data collection strategies appropriate to a particular scientific question. Video: https://www.youtube.com/watch?v=AzTXnne40wU Worksheet: https://tinyurl.com/ybolylz3

Science Practice 5: The student can perform data analysis & evaluation of evidence. Video: https://www.youtube.com/watch?v=0]gukouOtZA Worksheet: https://tinyurl.com/ybskztts

Science Practice 6: The student can work with scientific explanations & theories. Video: https://www.youtube.com/watch?v=3gK1xWNM7kk Worksheet: https://tinyurl.com/yaosxsgp

Science Practice 7: The student is able to connect and relate knowledge across various scales, concepts and representations in and across domains. Video: https://www.youtube.com/watch?v=7l4bcs49JP8 Worksheet: https://tinvurl.com/y8g8bxgk

While the emphasis of this course will be on developing the seven skills above, a solid foundation of content knowledge is still necessary in order to be successful. AP Biology is designed to be the equivalent of a two semester introductory college-level course.

As such, the responsibility for mastering the content falls largely on YOU. We will explore topics you learned in your previous biology classes in much more depth. The curriculum is centered around four big ideas:

Big Idea 1: The process of evolution drives the diversity and unity of life.

Big Idea 2: Biological systems utilize free energy and molecular building blocks to grow, to reproduce and to maintain dynamic homeostasis.

Big Idea 3: Living systems store, retrieve, transmit and respond to information essential to life processes.

Big Idea 4: Biological systems interact, and these systems and their interactions possess complex properties.

As of 2019 the College Board restructured the curriculum of AP Biology into 8 units:

Unit 1: Chemistry of Life Unit 2: Cell Structure & Function Unit 3: Cellular Energetics Unit 4: Cell Cycle Unit 5: Heredity Unit 6: Gene Expression & Regulation Unit 7: Natural Selection Unit 8: Ecology

It is expected that you already have a working knowledge of basic biology from your previous classes. We do not have the time for me to reteach these basic concepts during the school year.

Part # 2 Biology Vocabulary Review

Therefore, your second assignment is **review any terms on the list below** that you may have forgotten from last year or perhaps never learned. You may use any Biology textbook (Openstax), notes from previous classes, or the Internet to teach yourself. It is up to you to determine how you will review and how much time you will spend on this assignment. However, it is recommended that you spread your studying out over the summer and review a little bit every couple of days rather than cramming the night before school starts. It is proven that you will retain information better this way. You should <u>be</u> **prepared to take a test** within the **first week of school** on this content. If you are unprepared and score poorly on the quiz, there may not be a retake and you may have additional remediation assignments that you will have to complete.

NOTE: You should have a **general understanding** of each of the following term. Do not stress over details.

1. abiotic 2. active transport 3. adenosine triphosphate (ATP) 4. adhesion 5. allele 6. amino acid 7. analogous structure 8. aquatic 9. artificial selection 10. asexual reproduction 11. biology 12. biomass 13. biome 14. biosphere 15. biotechnology 16. biotic 17. carbohydrate 18. carnivore 17. carrier (transport) proteins 19. catalyst 20. cell 21. cell cycle 22. cellular respiration 23. chlorophyll 24. chloroplast 25. chromosomal mutation 26. chromosomes 27. cladogram 28. co-dominance 29. cohesion 30. community (ecological) 31. competition 32. concentration gradient 33. consumer (ecological) 34. crossing-over

35. cytokinesis 36. decomposer 37.deoxyribonucleic acid (DNA) 38. diffusion 39. DNA mutation 40. DNA replication 41. dominant inheritance 42. ecology 43. ecosystem 44. embryology 45. endocytosis 46. endoplasmic reticulum (ER) 47. endosymbiosis 48. energy pyramid 49. enzyme 50. eukaryote 51. evolution 52. exocytosis 53. exponential growth 54. extinction 55. extracellular 56. facilitated diffusion 57. food chain 58. food web 59. fossils 60. founder effect 61. frame-shift mutation 62. gamete 63. gene 64. gene recombination 65. gene splicing 66. genetic drift 67. genetic engineering 68. genetically modified organism (GMO)

69. genotype 70. Golgi apparatus 71. gradualism 72. habitat 73. herbivore 74. homeostasis 75. homologous structure 76. impermeable 77. incomplete dominance 78. inheritance 79. interphase 80. intracellular 81. isolating mechanisms 82. limiting factor 83. lipids 84. logistic growth 85. macromolecule 86. meiosis 87. migration 88. mitochondrion 89. mitosis 90. monomer 91. monosaccharide 92. multicellular 93. multiple alleles 94. natural selection 95. niche 96. nondisjunction 97. nonnative species 98. nucleic acid 99. nucleotide 100. nucleus 101. omnivore 102. organelle 103. organic molecule 104. organism 105. osmosis 106. passive transport

107. pH 108. phenotype 109. photosynthesis 110. plasma membrane 111. point mutation 112. polarity 113. polygenic 114. polymer 115. population 116. population **d**vnamics 117. predator 118. prey 119. producer (ecological)

120. prokaryote 121. protein 122. protein synthesis 123. protein pumps 124. punctuated equilibrium 125. recessive inheritance 126. recombination 127. restriction enzyme 128. ribosome 129. semiconservative replication

130. sex-linked trait
131. sexual
reproduction
132. speciation
133. species
134. succession
135. transcription
136. translation
137. trophic level
138. unicellular
139. vestigial
structure
140. zygote

The AP Biology course is designed to be the equivalent to a college introductory biology course usually taken by biology majors during their first year. AP Biology includes those topics regularly covered in a college biology course for majors and differs significantly from the usual first high school course in biology with respect to the kind of textbook used, the range and depth of topics covered, the kind of laboratory work done by students, and the time and effort required of students. We will spend more time on learning to analyze data, checking for statistical significance of data, discussing data collection and writing conclusions. This will be quite different from the recalling of facts from previous biology class Therefore, the expectations are the same for AP Biology students as college biology majors. There will not be traditional homework assignments. Every activity or assignment we do will not be graded or entered into the gradebook. You are expected to participate in all of the daily activities and complete them in a timely manner.

The level of expectation for this type of course is very high. Only students who are truly committed to high standards of excellence and commitment will succeed in AP Biology. This course is taught in the anticipation of having students take the Advanced Placement Exam in Biology and do well.

I hope you have a GREAT summer!

-Ms. Erika Pugh

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*** Mark your calendar: AP Biology Exam is _TBA_, May 2026 ***